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forecast to produce the VOBRA

1. Introduction

The Ocean Prediction Center (OPC) of the National Centers for Environmental Prediction (NCEP) produces the offshore waters forecasts for both the Atlantic Ocean (OFFNT1, OFFNT2) and the Pacific Ocean (OFFPZ5, OFFPZ6). Currently, we provide forecasts for 8 zones in the Atlantic and 5 zones in the Pacific (Figure 1 and Figure 2). User feedback over the years has focused on the fact that the forecast zones are too large to provide detailed forecasts for their needs and also that the forecast zones are not aligned with the various user areas of responsibilities or key bathymetric features. The proposed forecast zones address many of our users' concerns and are designed to meet their needs for clear, concise forecasts that are aligned with the user's areas of responsibility.

The date of the proposed change is April 1, 2014.

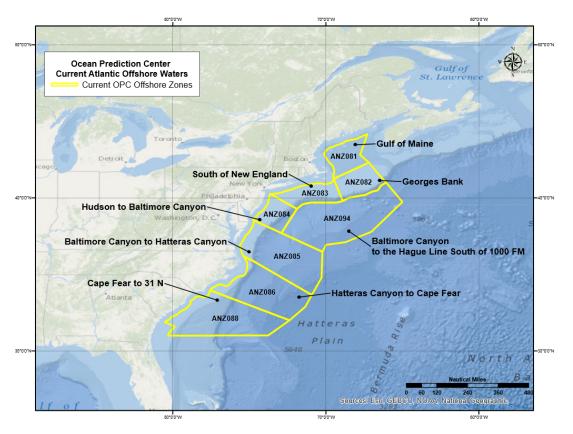


Figure 1. Existing Atlantic offshore waters zone configuration. Current configuration consists of eight (8) zones for the Atlantic offshore waters.

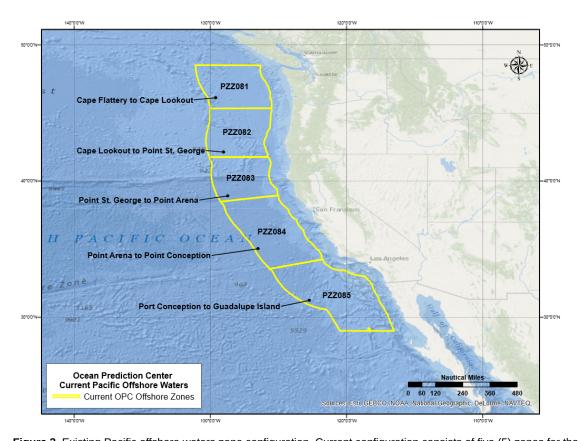


Figure 2. Existing Pacific offshore waters zone configuration. Current configuration consists of five (5) zones for the Pacific offshore waters.

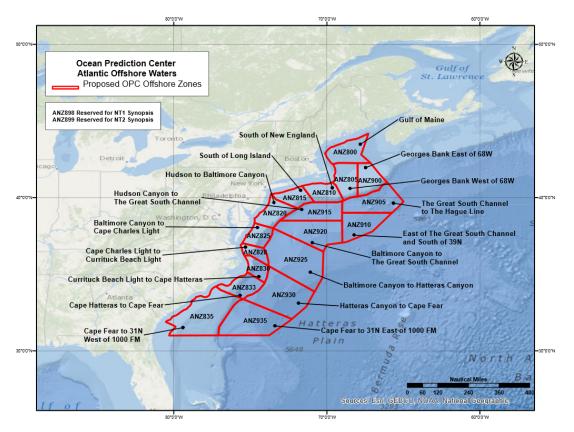


Figure 3. Proposed OPC Atlantic offshore waters zone configuration. Eighteen zones (18) cover the OPC Atlantic offshore waters.

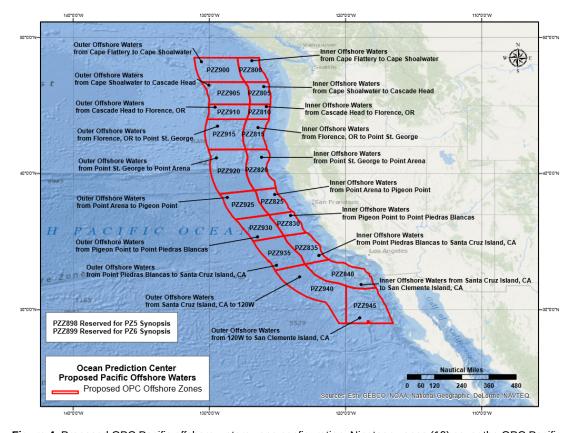


Figure 4. Proposed OPC Pacific offshore waters zone configuration. Nineteen zones (19) cover the OPC Pacific offshore waters.

2. The development of gridded marine forecasts and smaller marine zones

On May 1, 2013 OPC started using the Graphical Forecast Editor (GFE) to help produce offshore marine forecasts based on a gridded database. The gridded database is produced using the Advanced Weather Interactive Processing System's (AWIPS II) GFE. The gridded database consists of numerical weather prediction (NWP) model fields from one or several forecast models that are massaged by the forecasters, taking into account forecaster expertise. The forecasters can blend models or select from a single preferred model to populate the fields. They can also edit the grid directly based on their experience with model performance. The forecaster edits the gridded fields to provide a value added gridded marine database on a 5 km horizontal resolution. Winds, wind gusts, hazards and significant wave height grids are produced at a 3 hour time step through the 5 day period of the forecast. The utility of the gridded marine database lies in the capability to derive products from this database through the use of text formatters, including redesigned NAVTEX and high-frequency (HF) voice-broadcasts (VOBRA). Additional details on these products will be addressed in the Dissemination and Operational Backup section. The gridded data is also composited from multiple offices and hosted on a website at http://preview.weather.gov/graphical/ with the gridded data becoming an increasingly important product since it gives a detailed forecast that goes beyond what can be contained in a text product.

The text formatters in AWIPS GFE allow for the creation of much smaller zones which provide detailed forecasts for each zone, thus eliminating excessive wording necessary to describe conditions in larger zones.

3. Current Zone numbers for the Offshore Waters Zones

Figure 1 and Figure 2 depict the current offshore waters zone configuration for OPC for the Atlantic (OFFNT1, OFFNT2) and the Pacific (OFFPZ5, OFFPZ6) offshore waters area of responsibility. The current Universal Geographical Code (UGC) zone numbers and geographical descriptions for the OPC offshore waters are listed below.

Atlantic Ocean- NT1 waters

ANZ080 - Synopsis for New England Waters.

ANZ081 - Gulf of Maine to the Hague Line. ANZ081

ANZ082 - Georges Bank from the Northeast Channel to the Great South Channel including the waters east of Cape Cod to the Hague Line.

ANZ083 - South of New England from the Great South Channel to Hudson Canyon including the waters south of Martha's Vineyard and Nantucket Island out to 1000 fathoms.

Atlantic Ocean- NT2 waters

ANZ089 - Synopsis for Mid Atlantic Waters.

ANZ084 - Hudson to Baltimore Canyon.

ANZ085 - Baltimore Canyon to Hatteras Canyon out to 36N 70W to 34N 71W.

ANZ086 - Hatteras Canyon to Cape Fear out to 34N 71W to 32N 73W.

ANZ088 - Cape Fear to 31N out to 32N 73W to 31N 74W.

ANZ094 - Baltimore Canyon to the Hague Line South of 1000 Fathoms

Pacific Ocean- PZ5 waters

PZZ080 - Synopsis for Washington and Oregon Waters.

PZZ081 - Cape Flattery to Cape Lookout.

PZZ082 - Cape Lookout to Point St. George

Pacific Ocean- PZ6 waters

PZZ089 - Synopsis for California Waters Offshore.

PZZ083 - Point St. George to Point Arena.

PZZ084 - Point Arena to Point Conception.

PZZ085 - Point Conception to Guadalupe Island.

4. Rationale for the proposed offshore waters zone configuration

The text formatter in GFE works best with smaller zones which are based on local climate regimes that are more or less homogenous. The proposed zone configurations were designed with this in mind. A key consideration for the layout of the proposed zones is the climatology of 10 m Quikscat winds. Local climatology and bathymetry were other factors considered as well. An "inner" marine zone was added wherever practical in order to help local WFOs maintain an effective NOAA Weather Radio program as well as to provide more specific information to mariners near the coast. The position of the Gulf Stream was taken into account for the Atlantic zones. The zone configurations were adjusted where possible to coincide with existing marine boundaries from coastal weather forecast offices (WFO). Input from coastal offices was taken into account to define the boundaries. Customer feedback for the changes has been positive since users have expressed the concern that the offshore forecasts cover such a large area that they often times are not specific enough for their needs.

The zone names reflect well-known geographical entities covered in the zone area whenever possible (e.g. "Gulf of Maine"). In the absence of a convenient geographical reference, the zone name includes a well-known bathymetric feature whenever possible (e.g. "1000 fathoms"). In some instances, boundaries were described by latitude and/or longitude description.

Finally, all of the proposed zone numbers have new Universal Geographical Codes (UGC) which do not re-use any of the current zone numbers.

5. Proposed new Zone numbers for the Offshore Waters Zones

Figure 3 and Figure 4 depict the proposed offshore waters zone configuration for OPC's Atlantic (OFFNT1, OFFNT2) and Pacific (OFFPZ5, OFFPZ6) offshore waters area of responsibility. The proposed Universal Geographical Code (UGC) zone numbers and geographical descriptions for the OPC offshore waters are listed below.

OPC Atlantic Offshore Waters

ANZ898 - Synopsis for New England Waters.

ANZ899 - Synopsis for Mid Atlantic Waters.

ANZ800 - Gulf of Maine to the Hague Line.

ANZ805 - Georges Bank from the Northeast Channel to the Great South Channel including the waters east of Cape Cod and west of 68W

ANZ810 - South of New England from the Great South Channel to Montauk, NY including the waters south of Martha's Vineyard and Nantucket Island out to 1000 fathoms.

ANZ815 - South of Long Island from Montauk, NY to Sandy Hook, NJ out to 1000 fathoms.

ANZ820 - Hudson Canyon to Baltimore Canyon out to 1000 fathoms.

ANZ825 - Baltimore Canyon to Cape Charles Light out to 100 NM Offshore.

ANZ828 - Cape Charles Light to Currituck Beach Light out to 100 NM Offshore.

ANZ830 - Currituck Beach Light to Cape Hatteras out to 100 NM Offshore

ANZ833 - Cape Hatteras to Cape Fear out to 100 NM Offshore

ANZ835 - Cape Fear to 31N out to 1000 FM.

ANZ900 - Georges Bank from the Northeast Channel to the Great South Channel east of 68W to the Hague Line.

ANZ905 - The Great South Channel to The Hague Line including the waters south of 1000 fathoms to 39N.

ANZ910 - East of The Great South Channel and south of 39N out to 250 NM Offshore.

ANZ915 - Hudson Canyon to the Great South Channel including the waters south of 1000 fathoms out to 38.5N.

ANZ920 - Baltimore Canyon to The Great South Channel including the waters east of 1000 fathoms and south of 38.5N out to 250 NM Offshore.

ANZ925 - Baltimore Canyon to Hatteras Canyon including the waters between 100 NM and 250 NM Offshore.

ANZ930 - Hatteras Canyon to Cape Fear including the waters between 100 NM and 250 NM Offshore.

ANZ935 - Cape Fear to 31N including the waters east of 1000 fathoms out to 250 NM Offshore.

OPC Pacific Offshore Waters

PZZ898 - Synopsis for Washington and Oregon waters

PZZ899 - Synopsis for California waters

PZZ800 - Cape Flattery to Cape Shoalwater out to 150 NM Offshore

PZZ805 - Cape Shoalwater to Cape Lookout out to 150 NM Offshore

PZZ810 - Cape Lookout to Florence, OR out to 150 NM Offshore

PZZ815 - Florence, OR to Point St. George out to 150 NM Offshore

PZZ900 - Cape Flattery to Cape Shoalwater between 150 NM and 250 NM Offshore

PZZ905 - Cape Shoalwater to Cape Lookout between 150 NM and 250 NM Offshore

PZZ910 - Cape Lookout to Florence, OR between 150 NM and 250 NM Offshore

PZZ915 - Florence, OR to Point St. George between 150 NM and 250 NM Offshore

PZZ820 - Point St. George to Point Arena out to 150 NM Offshore

PZZ825 - Point Arena to Pigeon Point out to 150 NM Offshore

PZZ830 - Pigeon Point to Point Piedras Blancas out to 150 NM Offshore

PZZ835 - Point Piedras Blancas to Santa Cruz Island, CA out to 150 NM Offshore

PZZ840 - Santa Cruz Island, CA to San Clemente Island, CA out to 150 NM Offshore

PZZ920 - Point St. George to Point Arena between 150 NM and 250 NM Offshore

PZZ925 - Point Arena to Pigeon Point between 150 NM and 250 NM Offshore

PZZ930 - Pigeon Point to Point Piedras Blancas between 150 NM and 250 NM Offshore

PZZ935 - Point Piedras Blancas to Santa Cruz Island, CA between 150 NM and 250 NM Offshore

PZZ940 - Santa Cruz Island, CA to 120W between 150 NM and 250 NM Offshore

PZZ945 - 120W to San Clemente Island, CA between 150 NM and 250 NM Offshore

Appendices A and B provide samples of the offshore forecasts for the Atlantic and Pacific with the new zone configuration.

6. Dissemination and operational backup

NAVTEX

The GFE text formatters produce a NAVTEX product which derives the pertinent marine information from the gridded forecast database. The GFE NAVTEX text products are similar to the current NAVTEX products, but both versions sometimes exceed the 89 line limit set forth in the NWS marine directives. The NAVTEX products produced by the GFE text formatters are an improvement over the existing NAVTEX products since GFE incorporates coastal marine warnings and describes marine weather conditions within the mandated 250 nm area of the transmitter site. These features were the original requirements of the NAVTEX products, but the current NAVTEX format does not adhere to them.

In order to optimize the GFE text formatter software, slight changes to the NAVEX coverage areas are needed. **Figure 5** and **Figure 6** are a depiction of the proposed shape file that GFE will use to generate NAVTEX forecasts within OPC's offshore areas of responsibility. Appendix C provides a sample of a NAVTEX product for OFFN01.

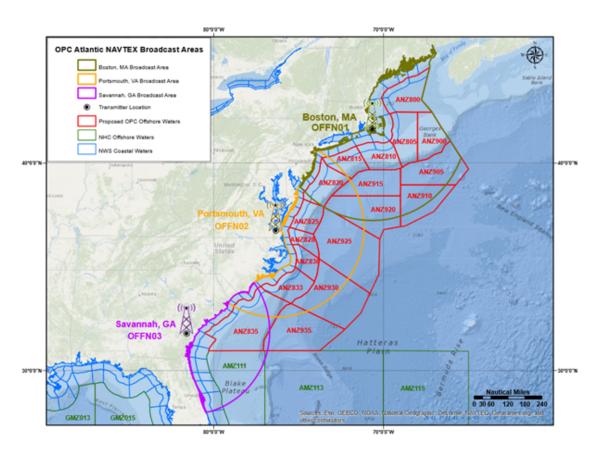


Figure 5. Proposed shape files for the Atlantic NAVTEX coverage area for the GFE text formatters. The three NAVTEX transmitters in OPC's Atlantic Area of Responsibility (AOR) are Boston MA, Portsmouth VA, and Savannah GA. They broadcast the OFFN01, OFFN02, and OFFN03 NAVTEX products.

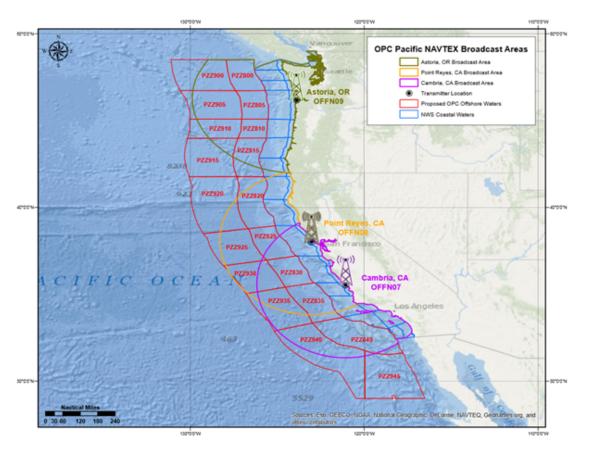
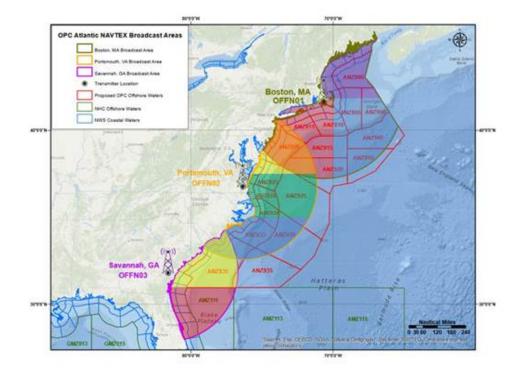


Figure 6. Proposed shape files for the Pacific NAVTEX coverage area for the GFE text formatters. The three NAVTEX transmitters in OPC's Pacific AOR are Astoria OR, Point Reyes CA and Cambria CA. They broadcast the OFFN09, OFFN08 and OFFN07 NAVTEX products.



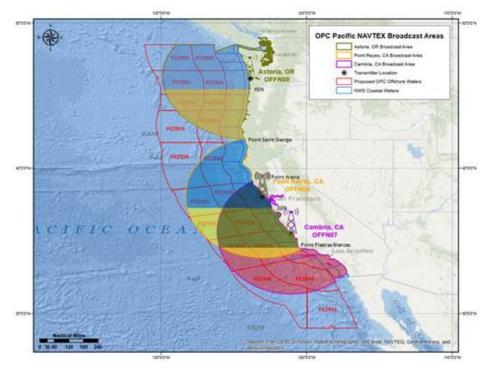


Figure 7. Proposed shape files for the NAVTEX GFE formatters coverage areas. Top panel is for the Atlantic and bottom panel for the Pacific.

NAVTEX GFE formatter coverage areas

Figure 7 shows the NAVTEX formatter coverage areas for the Atlantic and Pacific. The shading in the figure indicates subdivisions within the transmitter area for separate forecasts and forecast area descriptions.

Current Atlantic NAVTEX Forecast area descriptions are the following:

N01: Eastport Maine to Cape Cod...east to the Hague line Cape Cod to Nantucket Shoals and Georges Bank...east to the Hague Line South of New England...out to 1000 FMS

N02: Sandy Hook to Fenwick Island...out to 250 NM Fenwick Island to Cape Hatteras...out to 250 NM Cape Hatteras to Murrells Inlet...out to 250 NMM

N03: Murrells Inlet to 31N...out 250 NM South of 31N...out to 65W

Proposed Atlantic NAVTEX Forecast area descriptions are the following:

N01: Eastport Maine to Cape Cod...east to the Hague line Cape Cod to Nantucket Shoals and Georges Bank east of 70W...to the Hague Line South of New England...to 70W

NO2: Sandy Hook to 37.5N...out to 250 NM 37.5N to Cape Hatteras...out to 250 NM Cape Hatteras to Murrells Inlet...out to 250 NM

N03: Murrells Inlet to 31N...out 250 NM South of 31N...out to 1000 FMS

Current Pacific NAVTEX Forecast area descriptions are the following:

N09: Canadian Border to Cape Lookout Cape Lookout to Point Saint George

N08: Point Saint George Point Arena Point Arena to Point Piedras Blancas...out to 250 NM

N07: Point Piedras Blancas to Point Conception Point Conception to the Mexico Border

Proposed Pacific NAVTEX Forecast area descriptions are the following:

N09: Canadian Border to 45N...out to 250 NM 45N to Point Saint George...out to 250 NM

N08: Point Saint George to 38N...out to 250 NM 38N to Point Piedras Blancas...out to 250 NM

N07: Point Arena to 35N...out to 250 NM 35N to the Mexico Border...out to 250 NM

High-frequency (HF) voice broadcasts for the USCGS (VOBRA)

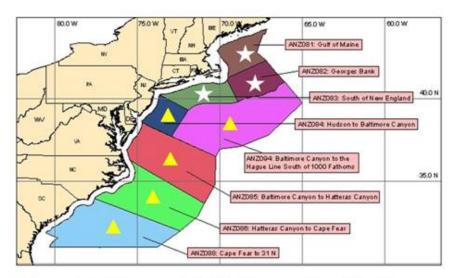
The United States Coast Guard (USCG) provides a high frequency voice broadcast (VOBRA) of the OPC offshore waters forecasts.

For the Atlantic, the broadcast is transmitted simultaneously from Chesapeake, VA (NMN) and New Orleans, LA

(NMG), and consists of HF transmissions at 6, 8, and 12 MHz. The current USCG schedule allows 90 minutes for the broadcast of all offshore forecasts, in addition to all active TCMAT1-5 products, and the TWOAT. These are read by a voice synthesizer ("Iron Mike") at 0330Z, 0930Z, 1530Z, and 2130Z. The current USCG Voice Broadcast (VOBRA) repeats the OFFNT1 and OFFNT2 verbatim.

The proposed solution for the VOBRA is the same approach used by the National Hurricane Center's Tropical Analysis and Forecast Branch (TAFB) when they converted to new zones in April 2012. This approach is to combine the proposed new offshore marine zones in a manner similar to the current zone configuration. Figure 8 and Figure 9 show the current and proposed VOBRA zone groupings. This solution would limit the broadcast cycle to the current time since it would preserve the same number of zone combinations and also retain the spatial coverage of the full OFFNT1 and OFFNT2 domains. In addition, this solution would still provide temporal coverage out to five days.

Appendices D and E provide samples of the offshore waters forecasts produced by combining the proposed offshore waters zones to replicate the current offshore waters zone configuration to prepare a script for VOBRA purposes.



Current Atlantic offshore zones with "star" for NT1 waters and "triangle" for NT2 waters

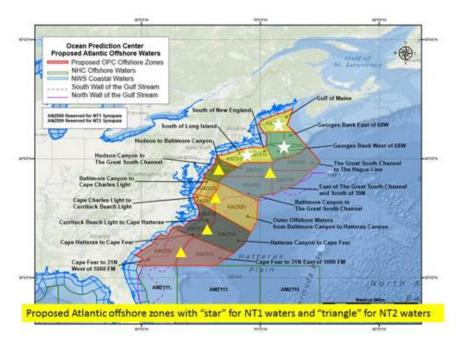


Figure 8. Top panel shows existing zone combination for Atlantic VOBRA broadcasts. Bottom panel shows proposed zone combination for Atlantic VOBRA broadcasts. The "star" symbol is used to show areas in the NT1 waters and the "triangle" symbol represents the NT2 waters area.



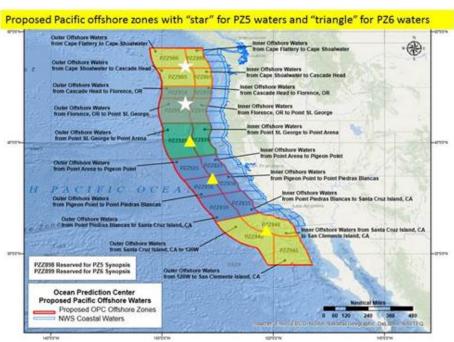


Figure 9. Top panel shows existing zone combination for Pacific VOBRA broadcasts. Bottom panel shows proposed zone combination for Pacific VOBRA broadcasts. The "star" symbol is used to show areas in the PZ5 waters and the "triangle" symbol represents the PZ6 waters area.

For the Pacific, the broadcast is transmitted from the Point Reyes CA transmitter, and consists of HF transmissions at 6, 8, and 12 MHz The current USCGS schedule allows 90 minutes for the broadcast of all offshore forecasts, in addition to the high seas forecasts for the east Pacific and the north central Pacific. The Tsunami Watch/Warning product as well as the Public Tsunami Message are also broadcast. These are read by a voice synthesizer ("Iron Mike") at 0430Z, 1030Z, 1630Z, and 2230Z. The current USCG Voice Broadcast (VOBRA) repeats the OFFPZ5 and OFFPZ6 verbatim.

The solutions described above will provide an improved service to the marine community.

Operational Backup of OPC with the New Offshore Zones

OPC will produce a set of zones for both the Atlantic and Pacific that mirror the "old" zones for backup purposes. In order to facilitate text backup, the same number of zone combinations that are currently produced, eight in the Atlantic and five in the Pacific, will routinely be prepared with GFE. In the event that OPC had to request unscheduled service backup, the backup offices could manually edit the text for the five Pacific zones or eight Atlantic zones as

they currently do for backup. They would always be able to start with the most current forecast produced by OPC in the old zone groupings. The logic behind this is that with the new zones there are too many to be able to manually edit the numbers of zones required (18 for the Atlantic and 19 for the Pacific). In the long term, OPC is pursuing gridded backup which would eliminate the need for producing legacy text forecasts routinely.

7. Graphical View of Sample Forecasts

New sample offshore waters forecasts that update every 6 hours are available at the following URL:

http://www.opc.ncep.noaa.gov/new_offshore/new_zones_map_mouseover.php

8. Questions and Comments

If you have any questions or comments about this reconfiguration of OPC offshore waters marine zones please contact:

Anthony L. Siebers Chief, Ocean Forecast Branch Ocean Prediction Center 5830 University Research Ct College Park, MD 20740 301-683-1497 Anthony.Siebers@noaa.gov

Mark A. Tew NWS Headquarters Marine Coastal Services Branch 1325 East-West Highway Silver Spring, MD 20910 301-713-1677 x 125 Mark.Tew@noaa.gov

You may also provide comments and feedback at this page using the web form.

Appendix A. Sample text output for new Offshore Waters Zones for the Atlantic (OFFNT1)

FZNT21 KWBC 120800 OFFNT1

OFFSHORE WATERS FORECAST NWS OCEAN PREDICTION CENTER WASHINGTON DC 400 AM EDT MON AUG 12 2013

NEW ENGLAND CONTINENTAL SHELF AND SLOPE WATERS FROM 25 NM OFFSHORE TO THE HAGUE LINE...EXCEPT TO 1000 FM S OF NEW ENGLAND

SEAS GIVEN AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE HEIGHT OF THE HIGHEST 1/3 OF THE WAVES. INDIVIDUAL WAVES MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.

ANZ080-121930-400 AM EDT MON AUG 12 2013

.SYNOPSIS FOR NEW ENGLAND WATERS...A STATIONARY FRONT SE OF THE WATERS NEAR CAPE HATTERAS WILL DRIFT N AND WEAKEN TODAY INTO TUE AS WEAK LOW PRES MOVES E ALONG THE FRONT. AN AREA OF HIGH PRES JUST W OF THE REGION WILL MOVE E THROUGH THE WATERS EARLY TODAY. ANOTHER COLD FRONT WILL MOVE SE OVER THE REGION TUE NIGHT...THEN PASS S OF THE WATERS WED BEFORE STALLING OFF THE MID ATLANTIC COAST THU. A LOW WILL DEVELOP ALONG THE FRONT FRI AND LIFT IT N AS A WARM FRONT. ANOTHER AREA OF HIGH PRES WILL BUILD E FROM THE

GREAT LAKES WED...PASS THROUGH THE WATERS THU...THEN MOVE E OF THE AREA FRI.

\$\$

ANZ800-121930-GULF OF MAINE TO THE HAGUE LINE-400 AM EDT MON AUG 12 2013

- .TODAY...W WINDS 5 TO 10 KT...BECOMING S TO SW 5 TO 15 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.
- .TONIGHT...S TO SW WINDS 10 TO 15 KT. SEAS 2 TO 4 FT.
- .TUE...S TO SW WINDS 10 TO 20 KT...BECOMING W TO SW IN THE AFTERNOON. SEAS 2 TO 4 FT. TSTMS AND AREAS OF FOG WITH VSBY 1 NM OR LESS.
- .TUE NIGHT...W TO SW WINDS 10 TO 20 KT...BECOMING W 10 TO 15 KT AFTER MIDNIGHT. SEAS 3 TO 5 FT.
- .WED...N TO NW WINDS 5 TO 15 KT...BECOMING W TO NW LATE. SEAS 2 TO 4 FT.
- .THU...W TO NW WINDS 5 TO 15 KT...BECOMING S TO SW 10 TO 20 KT LATE. SEAS 2 TO 4 FT.
- .FRI...W TO SW WINDS 5 TO 10 KT...BECOMING S TO SW 5 TO 15 KT LATE. SEAS 2 TO 3 FT.

\$\$

ANZ805-121930-

GEORGES BANK...INCLUDING THE WATERS EAST OF CAPE COD AND WEST OF 68W-

400 AM EDT MON AUG 12 2013

- .TODAY...W TO SW WINDS LESS THAN 10 KT...BECOMING S TO SW IN THE AFTERNOON. SEAS 2 TO 3 FT.
- .TONIGHT...S TO SW WINDS 10 TO 15 KT. SEAS 3 TO 4 FT.
- .TUE...S TO SW WINDS 10 TO 15 KT...BECOMING W TO SW 5 TO 15 KT IN THE AFTERNOON. SEAS 3 TO 4 FT. TSTMS AND AREAS OF FOG WITH VSBY 1 NM OR LESS.
- .TUE NIGHT...S TO SW WINDS 10 TO 20 KT...BECOMING W TO SW 5 TO 15 KT AFTER MIDNIGHT. SEAS 3 TO 4 FT. TSTMS.
- .WED...W TO NW WINDS 5 TO 15 KT...BECOMING N TO NW LATE. SEAS 3 TO 5 FT.
- .THU...N TO NW WINDS LESS THAN 10 KT...BECOMING S TO SW LATE. SEAS 2 TO 4 FT.
- .FRI...SW WINDS 5 TO 10 KT...BECOMING E 10 TO 20 KT LATE. SEAS 2 TO 3 FT...BUILDING TO 3 TO 5 FT LATE.

\$\$

ANZ900-121930-

GEORGES BANK...EAST OF 68W TO THE HAGUE LINE-400 AM EDT MON AUG 12 2013

- .TODAY...W TO NW WINDS LESS THAN 10 KT...BECOMING S TO SW IN THE AFTERNOON. SEAS 3 FT.
- .TONIGHT...S TO SW WINDS 10 TO 15 KT. SEAS 3 TO 4 FT.
- .TUE...S TO SW WINDS 15 TO 20 KT...BECOMING W TO SW 10 TO 20 KT IN THE AFTERNOON. SEAS 3 TO 5 FT. SCATTERED SHOWERS AND TSTMS WITH POSSIBLE FOG WITH VSBY 1 NM OR LESS.
- .TUE NIGHT...W TO SW WINDS 5 TO 15 KT. SEAS 3 TO 5 FT. TSTMS AND AREAS OF FOG WITH VSBY 1 NM OR LESS.
- .WED...W TO NW WINDS 5 TO 15 KT...BECOMING N TO NW LATE. SEAS 3 TO 5 FT.
- .THU...W TO NW WINDS LESS THAN 10 KT...BECOMING W TO SW LATE. SEAS 3 TO 4 FT.

.FRI...E TO SE WINDS LESS THAN 10 KT...INCREASING TO 10 TO 20 KT LATE. SEAS 2 TO 4 FT.

\$\$

ANZ810-121930-

SOUTH OF NEW ENGLAND...FROM THE GREAT SOUTH CHANNEL TO MONTAUK, NY INCLUDING THE WATERS SOUTH OF MARTHA'S VINEYARD AND NANTUCKET ISLAND...OUT TO 1000 FM-

400 AM EDT MON AUG 12 2013

.TODAY...W TO SW WINDS LESS THAN 10 KT...BECOMING S TO SW IN THE MORNING...THEN...INCREASING TO 10 TO 15 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.

.TONIGHT...S TO SW WINDS 5 TO 15 KT. SEAS 2 TO 3 FT.

.TUE...W TO SW WINDS 5 TO 15 KT...BECOMING W TO NW IN THE AFTERNOON. SEAS 2 TO 4 FT. CHANCE OF RAIN IN THE AFTERNOON. .TUE NIGHT...S TO SW WINDS 5 TO 15 KT...BECOMING W TO SW AFTER

MIDNIGHT. SEAS 2 TO 3 FT.

.WED...W TO NW WINDS 10 TO 15 KT...BECOMING N TO NE 5 TO 15 KT LATE. SEAS 3 TO 5 FT.

.THU...E TO SE WINDS LESS THAN 10 KT...BECOMING S TO SE LATE. SEAS 2 TO 4 FT.

.FRI...E TO SE WINDS LESS THAN 10 KT...BECOMING E TO NE 10 TO 20 KT LATE. SEAS 2 TO 3 FT...BUILDING TO 3 TO 5 FT LATE.

\$\$

ANZ815-121930-

SOUTH OF LONG ISLAND...FROM MONTAUK, NY TO SANDY HOOK, NJ...OUT TO 1000 FM- $\,$

400 AM EDT MON AUG 12 2013

.TODAY...S TO SW WINDS LESS THAN 10 KT. SEAS 2 TO 3 FT.

.TONIGHT...SW WINDS 5 TO 10 KT. SEAS 2 TO 3 FT.

.TUE...W TO NW WINDS 5 TO 10 KT...BECOMING S TO SW 5 TO 15 KT IN THE AFTERNOON. SEAS 2 TO 3 FT. TSTMS AND CHANCE OF RAIN. .TUE NIGHT...S TO SW WINDS 5 TO 15 KT...BECOMING W TO NW 10 TO

15 KT AFTER MIDNIGHT. SEAS 2 TO 3 FT.

.WED...N TO NW WINDS 5 TO 15 KT. SEAS 2 TO 4 FT.

.THU...N TO NE WINDS LESS THAN 10 KT...BECOMING S LATE. SEAS 2 TO 3 FT.

.FRI...E TO NE WINDS LESS THAN 10 KT...INCREASING TO 5 TO 15 KT LATE. SEAS 2 TO 4 FT.

\$\$

.FORECASTER OPC. OCEAN PREDICTION CENTER.

Note: Link to current OFFNT1 is available at http://www.opc.ncep.noaa.gov/shtml/NFDOFFNT1.shtml

Appendix B. Sample text output for new Offshore Waters Zones for the Pacific (OFFPZ5)

FZPN25 KWBC 120730 0FFPZ5

OFFSHORE WATERS FORECAST NWS OCEAN PREDICTION CENTER WASHINGTON DC 330 AM PDT MON AUG 12 2013

WASHINGTON AND OREGON WATERS-INNER WATERS FROM 60 NM TO 150 NM OFFSHORE. OUTER WATERS FROM 150 NM TO 250 NM OFFSHORE.

SEAS GIVEN AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE HEIGHT OF THE HIGHEST 1/3 OF THE WAVES. INDIVIDUAL WAVES MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.

PZZ080-122200-330 AM PDT MON AUG 12 2013

.SYNOPSIS FOR WASHINGTON AND OREGON WATERS...HIGH PRES WILL SLOWLY BUILD E ACROSS THE WATERS OVERNIGHT...THEN GRADUALLY WEAKEN MON INTO MON NIGHT. LOW PRES AND A COLD FRONT WILL APPROACH THE REGION TUE AND TUE NIGHT. THE LOW WILL PASS JUST NW OF THE WATERS WED AND THU...AS THE COLD FRONT DRIFTS E ACROSS THE AREA AND DISSIPATES. A WEAKENING LOW WILL MOVE NE ACROSS THE NRN WATERS FRI.

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PZZ800-122200-INNER WATERS FROM CAPE FLATTERY TO CAPE SHOALWATER-330 AM PDT MON AUG 12 2013

.TODAY...W TO SW WINDS LESS THAN 5 KT. SEAS 3 TO 4 FT. .TONIGHT...W TO SW WINDS LESS THAN 5 KT...BECOMING S AFTER MIDNIGHT. SEAS 3 FT.

.TUE...S TO SE WINDS LESS THAN 10 KT. SEAS 2 TO 4 FT.

.TUE NIGHT...S TO SW WINDS LESS THAN 10 KT...BECOMING S TO SE AFTER MIDNIGHT. SEAS 2 TO 4 FT.

.WED...S TO SE WINDS 5 TO 15 KT...BECOMING S TO SW LATE. SEAS 3 TO 5 FT.

.THU...S TO SW WINDS LESS THAN 5 KT...BECOMING S TO SE LATE. SEAS 3 TO 4 FT.

.FRI...S TO SE WINDS 5 TO 10 KT...BECOMING S TO SW LATE. SEAS 3 TO 5 FT.

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PZZ900-122200-

OUTER WATERS FROM CAPE FLATTERY TO CAPE SHOALWATER-330 AM PDT MON AUG 12 2013

.TODAY...W TO NW WINDS LESS THAN 5 KT...BECOMING S TO SW 5 TO 15 KT IN THE AFTERNOON. SEAS 3 TO 4 FT.

.TONIGHT...S TO SE WINDS 5 TO 15 KT...INCREASING TO 10 TO 20 KT AFTER MIDNIGHT. SEAS 3 TO 5 FT.

.TUE...S TO SE WINDS 10 TO 20 KT. SEAS 4 TO 7 FT. CHANCE OF RAIN. TUE NIGHT...S TO SE WINDS 10 TO 20 KT. SEAS 4 TO 7 FT. CHANCE OF RAIN AND TSTMS.

.WED...S TO SW WINDS 10 TO 20 KT...DIMINISHING TO 5 TO 15 KT LATE. SEAS 4 TO 6 FT.

.THU...S TO SW WINDS 5 TO 10 KT...BECOMING S TO SE 10 TO 20 KT LATE. SEAS 3 TO 5 FT.

.FRI...S TO SE WINDS 5 TO 15 KT...BECOMING NW LATE. SEAS 3 TO 6 FT.

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PZZ805-122200-

INNER WATERS FROM CAPE SHOALWATER TO CAPE LOOKOUT-330 AM PDT MON AUG 12 2013

.TODAY...W TO NW WINDS LESS THAN 5 KT. SEAS 3 TO 4 FT. .TONIGHT...W TO NW WINDS LESS THAN 5 KT...BECOMING SE AFTER

MIDNIGHT. SEAS 3 FT.

.TUE...S WINDS LESS THAN 10 KT. SEAS 2 TO 3 FT.

.TUE NIGHT...S WINDS LESS THAN 10 KT...BECOMING S TO SW AFTER MIDNIGHT. SEAS 2 TO 4 FT.

.WED...S WINDS 5 TO 15 KT...BECOMING S TO SW 5 TO 10 KT LATE. SEAS 3 TO 5 FT.

.THU...S TO SE WINDS LESS THAN 5 KT. SEAS 3 TO 4 FT.

.FRI...S TO SW WINDS 5 TO 10 KT. SEAS 3 TO 5 FT.

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PZZ905 - 122200 -

OUTER WATERS FROM CAPE SHOALWATER TO CAPE LOOKOUT-330 AM PDT MON AUG 12 2013

.TODAY...W TO NW WINDS LESS THAN 5 KT...BECOMING NW IN THE MORNING...THEN...BECOMING S TO SW IN THE AFTERNOON. SEAS 3 TO 4 FT.

.TONIGHT...S TO SW WINDS 5 TO 15 KT...BECOMING S TO SE 10 TO 20 KT AFTER MIDNIGHT. SEAS 3 TO 5 FT.

.TUE...S WINDS 10 TO 20 KT. SEAS 4 TO 7 FT.

.TUE NIGHT...S TO SE WINDS 10 TO 20 KT...BECOMING S TO SW AFTER MIDNIGHT. SEAS 3 TO 6 FT. CHANCE OF TSTMS AFTER MIDNIGHT.

.WED...S TO SW WINDS 5 TO 15 KT...DIMINISHING TO LESS THAN 10 KT LATE. SEAS 4 TO 6 FT.

.THU...S TO SE WINDS LESS THAN 10 KT...INCREASING TO 5 TO 15 KT LATE. SEAS 3 TO 5 FT.

.FRI...S TO SW WINDS 5 TO 15 KT...BECOMING NW LATE. SEAS 3 TO 5 FT.

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PZZ810-122200-

INNER WATERS FROM CAPE LOOKOUT TO FLORENCE OR-330 AM PDT MON AUG 12 2013

.TODAY...N TO NW WINDS LESS THAN 5 KT...BECOMING LESS THAN 10 KT IN THE AFTERNOON. SEAS 3 TO 4 FT.

.TONIGHT...N TO NW WINDS LESS THAN 10 KT...BECOMING N AFTER MIDNIGHT. SEAS 3 FT.

.TUE...SE WINDS LESS THAN 5 KT...BECOMING S IN THE AFTERNOON. SEAS 2 TO 3 FT.

.TUE NIGHT...S TO SE WINDS LESS THAN 10 KT. SEAS 2 TO 4 FT. .WED...S WINDS 5 TO 15 KT...BECOMING S TO SW LATE. SEAS 3 TO 5 FT.

.THU...S TO SE WINDS LESS THAN 10 KT...BECOMING S TO SW LATE. SEAS 3 TO 4 FT.

.FRI...W TO SW WINDS 5 TO 10 KT. SEAS 3 TO 5 FT.

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PZZ910-122200-

OUTER WATERS FROM CAPE LOOKOUT TO FLORENCE OR-330 AM PDT MON AUG 12 2013

.TODAY...NW WINDS LESS THAN 5 KT...BECOMING S IN THE MORNING...
THEN...INCREASING TO 5 TO 15 KT IN THE AFTERNOON. SEAS 3 TO 4 FT.
.TONIGHT...S TO SW WINDS 5 TO 15 KT...BECOMING S TO SE AFTER
MIDNIGHT. SEAS 3 TO 5 FT.

.TUE...S WINDS 10 TO 20 KT. SEAS 3 TO 6 FT.

.TUE NIGHT...S WINDS 10 TO 20 KT...BECOMING S TO SW 5 TO 15 KT AFTER MIDNIGHT. SEAS 3 TO 6 FT. CHANCE OF TSTMS AFTER MIDNIGHT. .WED...S TO SW WINDS 5 TO 15 KT...BECOMING W TO SW LATE. SEAS 4 TO 5 FT.

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.THU...S WINDS LESS THAN 10 KT...BECOMING S TO SW LATE. SEAS 3 TO
5 FT.
.FRI...S TO SW WINDS 5 TO 15 KT...BECOMING W TO SW 10 TO 15 KT
LATE. SEAS 3 TO 5 FT.
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PZZ815-122200-
INNER WATERS FROM FLORENCE OR TO POINT ST. GEORGE-
330 AM PDT MON AUG 12 2013
.TODAY...N TO NW WINDS 5 TO 15 KT. SEAS 3 TO 4 FT.
.TONIGHT...N TO NW WINDS 5 TO 15 KT...BECOMING N TO NE AFTER
MIDNIGHT. SEAS 3 TO 4 FT.
.TUE...N TO NE WINDS LESS THAN 10 KT...BECOMING S IN THE
AFTERNOON. SEAS 2 TO 3 FT.
.TUE NIGHT...S TO SW WINDS LESS THAN 10 KT. SEAS 2 TO 4 FT.
.WED...S TO SW WINDS 5 TO 15 KT...DIMINISHING TO LESS THAN 10 KT
LATE. SEAS 3 TO 5 FT.
.THU...S WINDS LESS THAN 10 KT. SEAS 3 TO 4 FT.
.FRI...W TO SW WINDS LESS THAN 10 KT. SEAS 3 TO 5 FT.
$$
PZZ915-122200-
OUTER WATERS FROM FLORENCE OR TO POINT ST. GEORGE-
330 AM PDT MON AUG 12 2013
.TODAY...SW WINDS LESS THAN 10 KT...BECOMING S IN THE MORNING...
THEN...BECOMING S TO SW IN THE AFTERNOON. SEAS 3 TO 4 FT.
.TONIGHT...S TO SW WINDS 5 TO 15 KT. SEAS 3 TO 5 FT.
.TUE...S TO SE WINDS 10 TO 20 KT...BECOMING S TO SW IN THE
AFTERNOON. SEAS 3 TO 6 FT.
.TUE NIGHT...S WINDS 5 TO 15 KT. SEAS 3 TO 5 FT.
.WED...S WINDS 5 TO 15 KT...BECOMING NE LATE. SEAS 3 TO 5 FT.
.THU...S WINDS LESS THAN 10 KT...BECOMING S TO SW LATE. SEAS 3 TO
.FRI...S TO SW WINDS 5 TO 15 KT...BECOMING W TO NW 5 TO 10 KT
LATE. SEAS 3 TO 6 FT.
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.FORECASTER OPC. OCEAN PREDICTION CENTER.

Note: Link to current OFFPZ5 is available at http://www.opc.ncep.noaa.gov/shtml/NFDOFFPZ5.shtml

Appendix C. Example of the NAVTEX product for the Boston transmitter (OFFN01) produced by new text formatters.

000 FZNT23 KWNM 120932 OFFN01

NAVTEX MARINE FORECAST FOR NE US WATERS NWS OCEAN PREDICTION CENTER WASHINGTON DC 531 AM EDT MON AUG 12 2013

...PLEASE REFER TO COASTAL WATERS FORECASTS (CWF) AVAILABLE THROUGH NOAA WEATHER RADIO AND OTHER MEANS FOR DETAILED COASTAL WATERS FORECASTS...

.SYNOPSIS...A STATIONARY FRONT SE OF THE WATERS NEAR CAPE

HATTERAS WILL DRIFT N AND WEAKEN TODAY INTO TUE AS WEAK LOW PRES MOVES E ALONG THE FRONT. AN AREA OF HIGH PRES JUST W OF THE REGION WILL MOVE E THROUGH THE WATERS EARLY TODAY. ANOTHER COLD FRONT WILL MOVE SE OVER THE REGION TUE NIGHT...THEN PASS S OF THE WATERS WED BEFORE STALLING OFF THE MID ATLANTIC COAST THU. A LOW WILL DEVELOP ALONG THE FRONT FRI AND LIFT IT N AS A WARM FRONT. ANOTHER AREA OF HIGH PRES WILL BUILD E FROM THE GREAT LAKES WED...PASS THROUGH THE WATERS THU...THEN MOVE E OF THE AREA FRI.

EASTPORT MAINE TO CAPE COD...EAST TO THE HAGUE LINE

- .TODAY...W TO SW WINDS 5 TO 10 KT...BECOMING S TO SW 5 TO 15 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.
- .TONIGHT...S TO SW WINDS 10 TO 15 KT. SEAS 2 TO 4 FT.
- .TUE...S TO SW WINDS 10 TO 20 KT...BECOMING W TO SW IN THE AFTERNOON. SEAS 2 TO 4 FT. CHANCE OF TSTMS AND AREAS OF FOG WITH VSBY 1 NM OR LESS.
- .TUE NIGHT...W TO SW WINDS 10 TO 20 KT...BECOMING 10 TO 15 KT AFTER MIDNIGHT. SEAS 3 TO 5 FT.
- .WED...W TO NW WINDS 5 TO 15 KT. SEAS 2 TO 4 FT.
- .THU...W TO SW WINDS 10 TO 20 KT. SEAS 2 TO 4 FT.
- .FRI...S TO SW WINDS 5 TO 15 KT. SEAS 2 TO 3 FT.

CAPE COD TO NANTUCKET SHOALS AND GEORGES BANK...EAST TO THE HAGUE LINE

- .TODAY...W TO SW WINDS LESS THAN 10 KT...BECOMING S TO SW IN THE AFTERNOON. SEAS 2 TO 3 FT.
- .TONIGHT...S TO SW WINDS 10 TO 15 KT. SEAS 3 TO 4 FT.
- .TUE...S TO SW WINDS 10 TO 20 KT...BECOMING W TO SW IN THE AFTERNOON. SEAS 3 TO 5 FT. CHANCE OF TSTMS AND AREAS OF FOG WITH VSBY 1 NM OR LESS.
- .TUE NIGHT...W TO SW WINDS 5 TO 15 KT. SEAS 3 TO 5 FT. AREAS OF FOG WITH VSBY 1 NM OR LESS IN THE EVENING. CHANCE OF TSTMS.
- .WED...N TO NW WINDS 5 TO 15 KT. SEAS 3 TO 5 FT.
- .THU...W TO SW WINDS LESS THAN 10 KT. SEAS 2 TO 4 FT.
- .FRI...E TO SE WINDS 10 TO 20 KT. SEAS 3 TO 5 FT.

SOUTH OF NEW ENGLAND...OUT TO 1000 FMS

- .TODAY...W TO SW WINDS LESS THAN 10 KT...BECOMING S TO SW IN THE MORNING...THEN...INCREASING TO 5 TO 15 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.
- .TONIGHT...S TO SW WINDS 5 TO 15 KT. SEAS 2 TO 3 FT.
- .TUE...W TO SW WINDS 5 TO 15 KT...BECOMING S IN THE AFTERNOON.
- SEAS 2 TO 4 FT. CHANCE OF TSTMS. RAIN IN THE AFTERNOON.
- .TUE NIGHT...S TO SW WINDS 5 TO 15 KT...BECOMING W TO NW AFTER MIDNIGHT. SEAS 2 TO 3 FT.
- .WED...N TO NW WINDS 5 TO 15 KT. SEAS 3 TO 5 FT.
- .THU...S TO SE WINDS LESS THAN 10 KT. SEAS 2 TO 4 FT.
- .FRI...E TO NE WINDS 10 TO 20 KT. SEAS 3 TO 5 FT.

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.FORECASTER OPC. OCEAN PREDICTION CENTER.

Note: Link to current OFFN01 is available at http://www.opc.ncep.noaa.gov/shtml/NFDOFFN01.shtml

Appendix D. Example output of script which utilizes zone combining in the Atlantic offshore waters (OFFNT1) forecast to produce the new VOBRA.

FZNT33 KWBC 120800 0FFN31

MARINE WEATHER HF VOICE BROADCAST NWS OCEAN PREDICTION CENTER WASHINGTON DC 400 AM EDT MON AUG 12 2013

MARINE WEATHER HF VOICE BROADCAST FOR THE NEW ENGLAND CONTINENTAL SHELF AND SLOPE WATERS FROM 25 NM OFFSHORE TO THE HAGUE LINE...EXCEPT TO 1000 FM S OF NEW ENGLAND

SEAS GIVEN AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE HEIGHT OF THE HIGHEST 1/3 OF THE WAVES. INDIVIDUAL WAVES MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.

SYNOPSIS FOR NEW ENGLAND WATERS

.SYNOPSIS...A STATIONARY FRONT SE OF THE WATERS NEAR CAPE HATTERAS WILL DRIFT N AND WEAKEN TODAY INTO TUE AS WEAK LOW PRES MOVES E ALONG THE FRONT. AN AREA OF HIGH PRES JUST W OF THE REGION WILL MOVE E THROUGH THE WATERS EARLY TODAY. ANOTHER COLD FRONT WILL MOVE SE OVER THE REGION TUE NIGHT...THEN PASS S OF THE WATERS WED BEFORE STALLING OFF THE MID ATLANTIC COAST THU. A LOW WILL DEVELOP ALONG THE FRONT FRI AND LIFT IT N AS A WARM FRONT. ANOTHER AREA OF HIGH PRES WILL BUILD E FROM THE GREAT LAKES WED...PASS THROUGH THE WATERS THU...THEN MOVE E OF THE AREA FRI.

GULF OF MAINE TO THE HAGUE LINE-

- .TODAY...W WINDS 5 TO 10 KT...BECOMING S TO SW 5 TO 15 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.
- .TONIGHT...S TO SW WINDS 10 TO 15 KT. SEAS 2 TO 4 FT.
- .TUE...S TO SW WINDS 10 TO 20 KT...BECOMING W TO SW IN THE AFTERNOON. SEAS 2 TO 4 FT. TSTMS AND AREAS OF FOG WITH VSBY 1 NM OR LESS.
- .TUE NIGHT...W TO SW WINDS 10 TO 20 KT...BECOMING W 10 TO 15 KT AFTER MIDNIGHT. SEAS 3 TO 5 FT.
- .WED...N TO NW WINDS 5 TO 15 KT...BECOMING W TO NW LATE. SEAS 2 TO 4 FT.
- .THU...W TO NW WINDS 5 TO 15 KT...BECOMING S TO SW 10 TO 20 KT LATE. SEAS 2 TO 4 FT.
- .FRI...W TO SW WINDS 5 TO 10 KT...BECOMING S TO SW 5 TO 15 KT LATE. SEAS 2 TO 3 FT.

GEORGES BANK...INCLUDING THE WATERS EAST OF CAPE COD AND WEST OF 68W-GEORGES BANK...EAST OF 68W TO THE HAGUE LINE-

- .TODAY...W TO SW WINDS LESS THAN 10 KT...BECOMING S TO SW IN THE AFTERNOON. SEAS 2 TO 3 FT.
- .TONIGHT...S TO SW WINDS 10 TO 15 KT. SEAS 3 TO 4 FT.
- .TUE...S TO SW WINDS 10 TO 20 KT...BECOMING W TO SW IN THE AFTERNOON. SEAS 3 TO 5 FT. TSTMS AND AREAS OF FOG WITH VSBY 1 NM OR LESS.
- .TUE NIGHT...W TO SW WINDS 10 TO 20 KT...DIMINISHING TO 5 TO 15 KT AFTER MIDNIGHT. SEAS 3 TO 5 FT. TSTMS.
- .WED...W TO NW WINDS 5 TO 15 KT...BECOMING N TO NW LATE. SEAS 3 TO 5 FT.
- .THU...W TO NW WINDS LESS THAN 10 KT...BECOMING W TO SW LATE. SEAS 2 TO 4 FT.

.FRI...SW WINDS LESS THAN 10 KT...BECOMING E 10 TO 20 KT LATE. SEAS 2 TO 3 FT...BUILDING TO 3 TO 5 FT LATE.

SOUTH OF NEW ENGLAND...FROM THE GREAT SOUTH CHANNEL TO MONTAUK, NY INCLUDING THE WATERS SOUTH OF MARTHA'S VINEYARD AND NANTUCKET ISLAND...OUT TO 1000 FM-

SOUTH OF LONG ISLAND...FROM MONTAUK, NY TO SANDY HOOK, NJ...OUT TO 1000 FM- $\,$

.TODAY...W TO SW WINDS LESS THAN 10 KT...BECOMING S TO SW IN THE MORNING...THEN...INCREASING TO 5 TO 15 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.

.TONIGHT...S TO SW WINDS 5 TO 15 KT. SEAS 2 TO 3 FT.

.TUE...W TO SW WINDS 5 TO 15 KT...BECOMING S IN THE AFTERNOON.

SEAS 2 TO 4 FT. TSTMS AND RAIN.

.TUE NIGHT...S TO SW WINDS 5 TO 15 KT...BECOMING W TO NW AFTER MIDNIGHT. SEAS 2 TO 3 FT.

.WED...N TO NW WINDS 5 TO 15 KT. SEAS 3 TO 5 FT.

.THU...NE WINDS LESS THAN 10 KT...BECOMING S TO SE LATE. SEAS 2 TO 4 FT.

.FRI...E TO NE WINDS LESS THAN 10 KT...INCREASING TO 10 TO 20 KT LATE. SEAS 2 TO 3 FT...BUILDING TO 3 TO 5 FT LATE.

Note: Link to current VOBRA for the Atlantic offshore waters (OFFNT1) is available at http://weather.noaa.gov/pub/data/raw/fz/fznt21.kwbc.off.nt1.txt

Appendix E. Example output of script which utilizes zone combining in the Pacific offshore waters (OFFPZ5) forecast to produce the new VOBRA.

FZPN35 KWBC 120730 0FFN35

MARINE WEATHER HF VOICE BROADCAST NWS OCEAN PREDICTION CENTER WASHINGTON DC 330 AM PDT MON AUG 12 2013

MARINE WEATHER HF VOICE BROADCAST FOR THE CALIFORNIA WATERS-INNER WATERS FROM 60 NM TO 150 NM OFFSHORE. OUTER WATERS FROM 150 NM TO 250 NM OFFSHORE.

SEAS GIVEN AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE HEIGHT OF THE HIGHEST 1/3 OF THE WAVES. INDIVIDUAL WAVES MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.

SYNOPSIS FOR WASHINGTON AND OREGON WATERS

.SYNOPSIS...HIGH PRES ACROSS THE WATERS WILL GRADUALLY WEAKEN TODAY INTO TONIGHT. LOW PRES AND A COLD FRONT WILL APPROACH THE REGION TUE AND TUE NIGHT. THE LOW WILL PASS JUST NW OF THE WATERS WED AND THU...AS THE COLD FRONT DRIFTS E ACROSS THE AREA AND DISSIPATES. A WEAKENING LOW WILL MOVE NE ACROSS THE NRN WATERS FRI.

INNER WATERS FROM CAPE FLATTERY TO CAPE SHOALWATER-INNER WATERS FROM CAPE SHOALWATER TO CAPE LOOKOUT-OUTER WATERS FROM CAPE FLATTERY TO CAPE SHOALWATER-OUTER WATERS FROM CAPE SHOALWATER TO CAPE LOOKOUT-

.TODAY...W TO NW WINDS LESS THAN 5 KT...BECOMING LESS THAN 10 KT IN THE MORNING...THEN...BECOMING S IN THE AFTERNOON. SEAS 3 TO 4 FT.

.TONIGHT...S WINDS 5 TO 15 KT...BECOMING S TO SE 10 TO 20 KT

AFTER MIDNIGHT. SEAS 3 TO 5 FT.

.TUE...S TO SE WINDS 10 TO 20 KT. SEAS 4 TO 7 FT. CHANCE OF RAIN.

.TUE NIGHT...S TO SE WINDS 10 TO 20 KT. SEAS 4 TO 7 FT. CHANCE OF

RAIN. CHANCE OF TSTMS AFTER MIDNIGHT.

.WED...S TO SW WINDS 10 TO 20 KT...DIMINISHING TO 5 TO 15 KT

LATE. SEAS 3 TO 6 FT.

.THU...S TO SE WINDS LESS THAN 10 KT...INCREASING TO 10 TO 20 KT

LATE. SEAS 3 TO 5 FT.

.FRI...S TO SW WINDS 5 TO 15 KT. SEAS 3 TO 6 FT.

INNER WATERS FROM CAPE LOOKOUT TO FLORENCE OR-

INNER WATERS FROM FLORENCE OR TO POINT ST. GEORGE-

OUTER WATERS FROM CAPE LOOKOUT TO FLORENCE OR-

OUTER WATERS FROM FLORENCE OR TO POINT ST. GEORGE-

.TODAY...N TO NW WINDS 5 TO 15 KT...BECOMING S. SEAS 3 TO 4 FT.

.TONIGHT...S WINDS 5 TO 15 KT. SEAS 3 TO 5 FT.

.TUE...S WINDS 10 TO 20 KT. SEAS 3 TO 6 FT.

TUE NIGHT...S WINDS 10 TO 20 KT...BECOMING S TO SW 5 TO 15 KT

AFTER MIDNIGHT. SEAS 3 TO 6 FT.

.WED...S WINDS 5 TO 15 KT...BECOMING S TO SW LATE. SEAS 3 TO

5 FT.

.THU...S TO SE WINDS LESS THAN 10 KT...BECOMING S TO SW LATE.

SEAS 3 TO 5 FT.

.FRI...S TO SW WINDS 5 TO 15 KT...BECOMING W TO SW LATE. SEAS

3 TO 6 FT.

Note: Link to current VOBRA for the Pacific offshore waters (OFFPZ5) is available at http://weather.noaa.gov/pub/data/raw/fz/fzpn25.kwbc.off.pz5.txt

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